Amendments to the Claims

1. (Currently Amended) An assay method comprising:

providing a sample that is suspected of containing a target polynucleotide;

providing a polycationic multichromophore that interacts with the target polynucleotide and upon excitation is capable of transferring energy to a signaling chromophore;

providing a sensor polynucleotide binding protein (PBP) that can bind to the target polynucleotide, said sensor PBP conjugated to the signaling chromophore;

contacting the sample with the sensor PBP and the multichromophore in a solution under conditions in which the sensor PBP can ~~hybridize~~ bind to the target polynucleotide, if present;

applying a light source that can excite the multichromophore; and

detecting whether light is emitted from the signaling chromophore.

2. (Previously Presented) The method of claim 1, wherein the multichromophore comprises a structure selected from a saturated polymer, a conjugated polymer, a dendrimer, and a semiconductor nanocrystal.

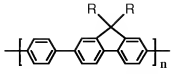
3. (Previously Presented) The method of claim 2, wherein the multichromophore comprises a saturated polymer.

4. (Previously Presented) The method of claim 2, wherein the multichromophore comprises a dendrimer.

5. (Previously Presented) The method of claim 2, wherein the multichromophore comprises a semiconductor nanocrystal.

6. (Previously Presented) The method of claim 2, wherein the multichromophore comprises a conjugated polymer.

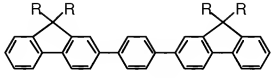
7. (Previously Presented) The method of claim 6, wherein the conjugated polymer has the structure



3 R= $-(CH_2)_6\overset{+}{N}Me_3\,I^-$

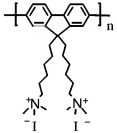
where n=2 -100,000.

8. (Previously Presented) The method of claim 6, wherein the conjugated polymer has the structure



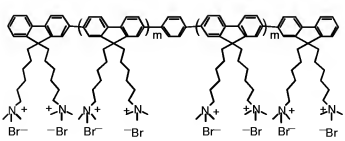
4 -R = $-(CH_2)_6\overset{\oplus}{N}Me_3\,\ominus I$.

9. (Previously Presented) The method of claim 6, wherein the conjugated polymer has the structure



where n=2-100,000.

10. (Previously Presented) The method of claim 6, wherein the conjugated polymer has the structure



where m = 1 or 2.

11. (Cancelled)

12. (Previously Presented) The method of claim 1, wherein the sample is contacted with the sensor PBP and the multichromophore in the presence of a sufficient amount of an organic solvent to decrease hydrophobic interactions between the sensor PBP and the multichromophore.

13. (Currenlty Amended) The method of claim 1, wherein the sample is contacted with a plurality of different sensor PBPs, said different sensor PBPs comprising a corresponding different signaling chromophore, wherein each of said different sensor PBPs can selectively ~~hybridize~~ bind to a corresponding different target polynucleotide.

14. (Previously Presented) The method of claim 1, wherein the chromophore is a fluorophore.

15. (Previously Presented) The method of claim 14, wherein the fluorophore is selected from a semiconductor nanocrystal, a fluorescent dye, a lanthanide chelate, and a green fluorescent protein.

16. (Previously Presented) The method of claim 15, wherein the fluorophore is a semiconductor nanocrystal.

17. (Previously Presented) The method of claim 15, wherein the fluorophore is a fluorescent dye.

18. (Previously Presented) The method of claim 17, wherein the fluorescent dye is fluorescein.

19. (Previously Presented) The method of claim 15, wherein the fluorophore is a lanthanide chelate.

20. (Previously Presented) The method of claim 1, wherein the target polynucleotide is DNA.

21. (Previously Presented) The method of claim 1, wherein the target polynucleotide is RNA.

22. (Previously Presented) The method of claim 1, wherein the sample comprises single-stranded target polynucleotide.

23. (Previously Presented) The method of claim 1, wherein the sample comprises double-stranded target polynucleotide.

24. (Previously Presented) The method of claim 1, wherein the target polynucleotide is produced via an amplification reaction.

25-26. (Cancelled)

27. (Previously Presented) The method of claim 1, wherein light emitted from the signaling chromophore above a threshold level indicates that the target polynucleotide is present in the sample.

28. (Previously Presented) The method of claim 1, wherein the amount of light emitted from the signaling chromophore is quantitated and used to determine the amount of the target polynucleotide in the sample.

29. (Previously Presented) The method of claim 15, wherein the fluorophore is a green fluorescent protein.

30. (Previously Presented) The method of claim 1, wherein the target polynucleotide is not amplified.

31. (Previously Presented) The method of claim 1, wherein the method is performed on a substrate.

32. (Previously Presented) The method of claim 1, wherein the amount of light emitted from the signaling chromophore upon excitation of the multichromophore is greater than the amount of light obtained upon direct excitation of the signaling chromophore.

33. (New) An assay method comprising:

providing a sample that is suspected of containing a target polynucleotide;

providing a polycationic multichromophore that interacts with the target polynucleotide and upon excitation is capable of transferring energy to a signaling chromophore;

providing a sensor polynucleotide binding protein (PBP) that can bind to the target polynucleotide, said sensor PBP conjugated to the signaling chromophore;

contacting the sample with the sensor PBP and the multichromophore in a solution under conditions in which the sensor PBP can preferentially bind to the target polynucleotide, if present;

applying a light source that can excite the multichromophore; and

detecting whether light is emitted from the signaling chromophore.